MYCOTAXON

ISSN (print) 0093-4666 (online) 2154-8889 Mycotaxon, Ltd. ©2018

April–June 2018—Volume 133, pp. 301–305

https://doi.org/10.5248/133.301

Endophragmiella terricola, *Gliomastix verrucipes*, and *Radulidium guttiforme* spp. nov. from soil in China

Yu-Lan Jiang[1§], Yue-Ming Wu[2,3§], Jun-Jie Xu[4],
Jin-Hua Kong[2], Tian-Yu Zhang[2*]

[1.] *Agriculture College, Guizhou University, Guiyang, 550025, China*
[2.] *Department of Plant Pathology, College of Plant Protection, Shandong Agricultural University, Taian, 271018, China*
[3.] *Shandong Key Laboratory of Agricultural Microbiology, Taian, 271018, China*
[4.] *College of Pharmacy, Linyi University, Linyi, 276000, China*

*Correspondence to: tyzhang1937@163.com

Abstract—Three new species from soil in China—*Endophragmiella terricola*, *Gliomastix verrucipes*, *Radulidium guttiforme*—are described, illustrated, and compared morphologically with similar species. The holotype specimens (dried cultures) and living cultures are deposited in the Herbarium of Shandong Agricultural University: Plant Pathology (HSAUP).

Key words—anamorphic fungi, dematiaceous hyphomycete, morphology, taxonomy

Introduction

Three undescribed species were obtained during a survey of soil dematiaceous hyphomycete diversity in China. The morphological characteristics of the fungi are described, illustrated, and compared with similar taxa. Dried culture specimens and living cultures are conserved in the Herbarium, Department of Plant Pathology, Shandong Agricultural University, Taian, China (HSAUP).

Endophragmiella terricola J.J. Xu & T.Y. Zhang, **sp. nov.** Fig. 1

MycoBank MB 823960

Differs from *Endophragmiella suttonii* by its bigger, 0–3-septate conidia with thin septa.

§ Y.L. Jiang and Y.M. Wu contributed equally to this work.

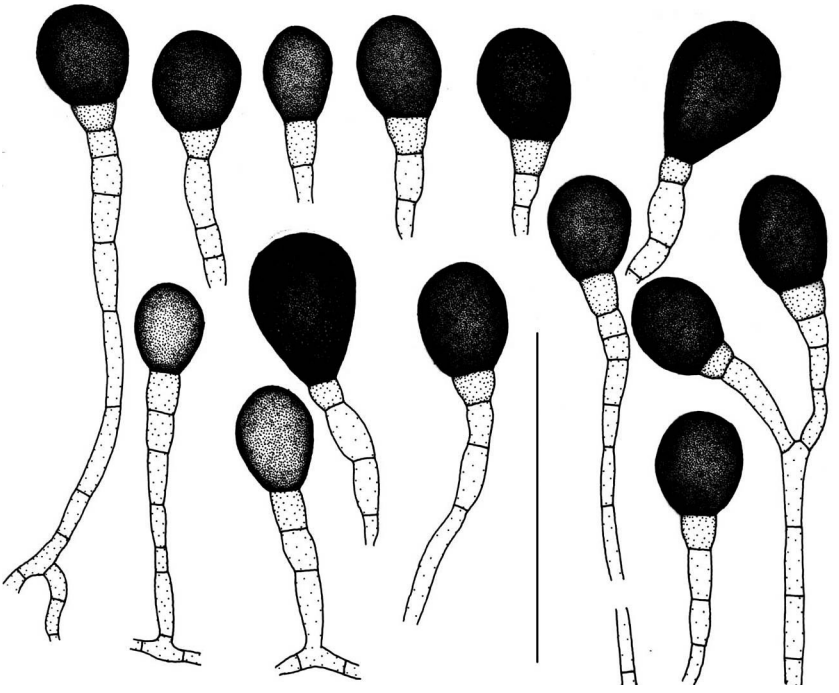

Fig. 1. *Endophragmiella terricola* (ex holotype, HSAUP $II_{04}2767$). Conidia, conidiophores, and conidiogenous cells. Scale bar = 50 μm.

Type: China, Guangdong Province, Zhanjiang City, from botanical garden soil, August 2004, J.J. Xu (**Holotype**, HSAUP $II_{04}2767$; ex-type culture, HSAUP $II_{04}2767$).

Etymology: in reference to the habitat.

Colonies on PDA effuse, sparsely hairy, at first white, later grey to dark grey, reverse pale brown, growing rapidly, reaching a diameter of 3–7.5 cm in 2 weeks at 25 °C. Mycelium mostly superficial; hyphae septate, branched, smooth, hyaline to pale brown, 1.5–4 μm diam. Conidiophores lateral or terminal, erect or ascending, septate, simple or occasionally branched, constricted at the base which connected with the hyphae, thickened to the apex, subhyaline to pale brown, 13–100 × 2.5–5 μm. Conidiogenous cells monoblastic, terminal, subhyaline, pale brown to brown, percurrent, obtrapezoidal, cylindrical or oblong, 5–13 × 1.5–6 μm. Conidia acrogenous, smooth, subspherical, pyriform or broadly clavate, 0–3-septate, apical cell brown to dark brown and swollen to ⅔–¾ of the whole spore, sometimes

thick-walled, tapering abruptly to the subapical cell, basal cell (or cells) small and subhyaline to pale brown, 18–22 × 12.5–16.5 μm.

Comments: The conidia of *Endophragmiella terricola* are most similar to those of *E. suttonii* P.M. Kirk. However, in *E. suttonii* the conidia are smaller (16–18 × 9.5–11 μm), and 3–4-septate with two thick distal septa (Kirk 1981).

Gliomastix verrucipes T.Y. Zhang, Y.M. Wu & J.J. Xu, **sp. nov.** Fig. 2

MycoBank MB 823962

Differs from *Gliomastix luzulae* by its shorter, ovoid or ellipsoidal conidia.

Type: China, Fujian Province, Wuyi Mountains, from bamboo forest soil, August 2004, J.J. Xu (**Holotype**, HSAUP $II_{04}2773$; ex-type culture, HSAUP $II_{04}2773$; **isotype**, HMAS 196295).

Etymology: in reference to the verruculose phialides.

Colonies on PDA effuse, at first white, finally greyish black or dark green, floccose or powdery, growing moderately fast, reaching 5–7 cm in diameter

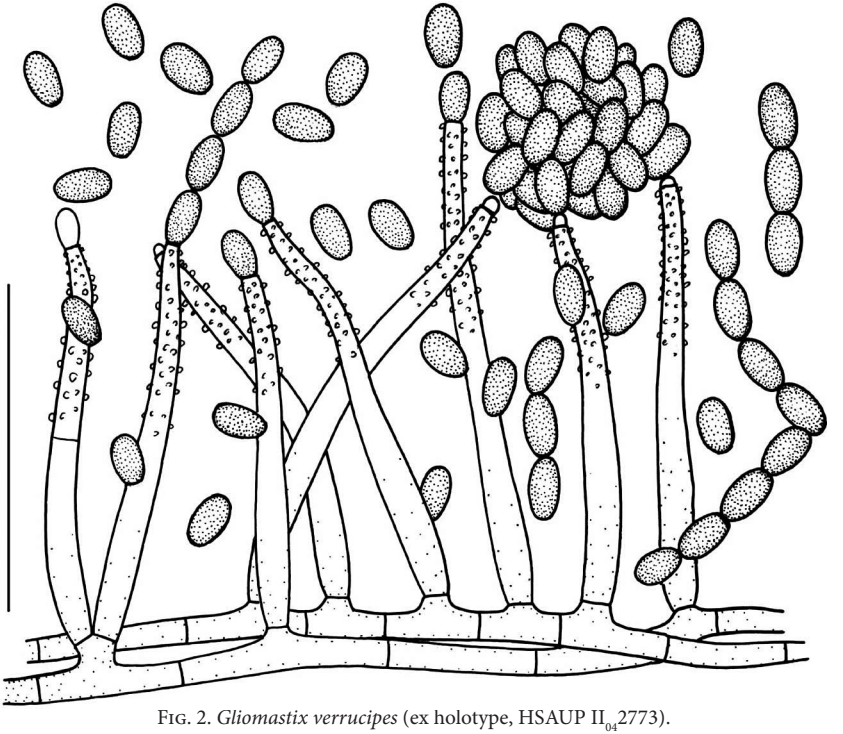

Fig. 2. *Gliomastix verrucipes* (ex holotype, HSAUP $II_{04}2773$). Conidia, hyphae, and phialides. Scale bar = 25 μm.

in 2 weeks at 25 °C. Mycelium mostly superficial; hyphae smooth, hyaline or rather pale brown, septate, branched, 1–2 µm diam. Phialides solitary or in fascicles, straight or slightly curved, verruculose above the middle part, hyaline or subhyaline, cylindrical or subulate, unbranched, 24–35 × 2–2.5 µm, swollen at the base to 2.5–3 µm. Conidia unicellular, obovate or ellipsoidal, truncate or rounded at the base, greenish brown, smooth, 4–6 × 2.5–3 µm.

Comments: *Gliomastix verrucipes* is morphologically similar to *G. luzulae* E.W. Mason ex S. Hughes in having subulate phialides roughened, at least in the middle and upper parts, but *G. luzulae* differs by its longer or narrower (4.5–9.3 × 1.5–2.9 µm, mostly 6.7 × 2.3 µm) and fusoid conidia (Hughes & Dickinson 1968).

Radulidium guttiforme T.Y. Zhang, Y.M. Wu & J.H. Kong, **sp. nov.** Fig. 3

MycoBank MB 823963

Differs from previously described *Radulidium* species by its droplet-like or obovate, thick-walled conidia.

Type: China, Gansu Province, Lanzhou City, Yellow River, from beach soil, August 2005, J.H. Kong (**Holotype**, HSAUP $II_{05}2633$; ex-type culture, HSAUP $II_{05}2633$).

Etymology: in reference to the guttiform conidia.

Colonies on MEA arachnoid or floccose, felted, compact, ochraceous yellow to brown, growing rapidly. Mycelium partly superficial, partly immersed, superficial hyphae funiculose. Conidiophores terminal or lateral, simple or occasionally branched, subhyaline to pale brown, 13–38 × 2–3 µm. Conidiogenous cells polyblastic, sympodial, inflated and densely covered with tapered cylindrical denticles. Conidia holoblastic, aseptate, guttiform or obovate, rounded at the apex, papillate or slightly truncate at the base, thick-walled, finely echinulate, greenish brown, 3.5–6 × 2.5–4 µm.

Comments: There are three previously described *Radulidium* species: *R. epichloes* (Ellis & Dearn.) Arzanlou & al., which differs from *R. guttiforme* by its subhyaline, rather thin-walled, and obovoidal to fusiform conidia (Hoog & Hermanides-Nijhof 1977); *R. subulatum* (de Hoog) Arzanlou & al., which differs by its subhyaline, thin- to slightly thick-walled, and fusiform to subcylindrical conidia (Hoog & Hermanides-Nijhof 1977); and *R. xigazense* Y.M. Wu & T.Y. Zhang, which differs by its subhyaline, clavate to fusiform, and more slender conidia (5–7 × 1.5–2 µm; Wu & al. 2013).

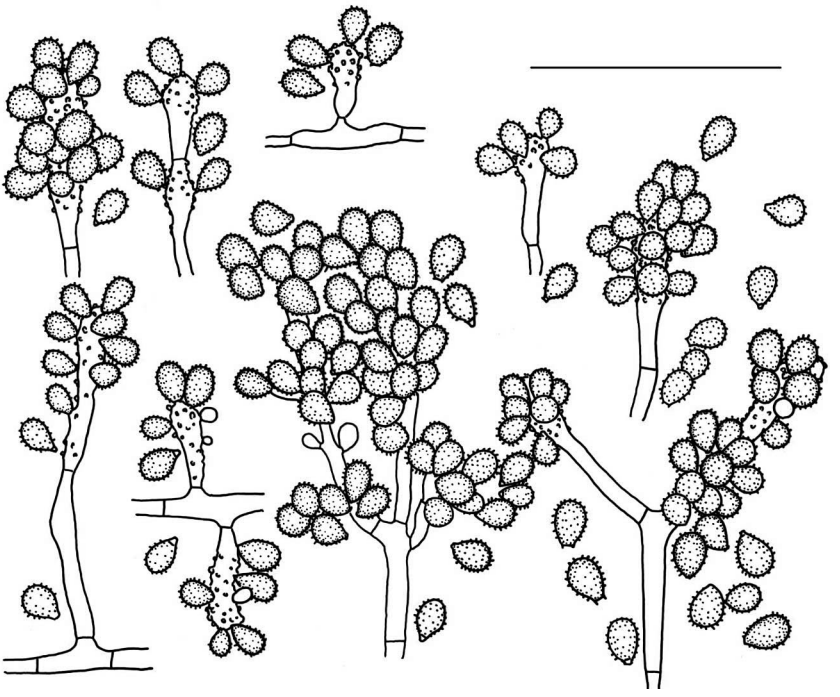

Fig. 3. *Radulidium guttiforme* (ex holotype, HSAUP $II_{05}2633$).
Conidia, conidiophores, conidiogenous cells, and denticles. Scale bar = 25 μm.

Acknowledgments

The authors are grateful for pre-submission comments and suggestions provided by Drs. W.X. Sun, Y.L. Zhang, and Shaun Pennycook. This project was supported by the National Natural Science Foundation of China (nos. 31660006 & 30970011).

Literature cited

Hoog GS de, Hermanides-Nijhof EJ. 1977. The black yeasts and allied hyphomycetes. Studies in Mycology 15. 222 p.

Hughes SJ, Dickinson CH. 1968. New Zealand fungi XI. *Gliomastix* Guéguen. New Zealand Journal of Botany 6: 106–114. https://doi.org/10.1080/0028825X.1968.10428795

Kirk PM. 1981. New or interesting microfungi II. Dematiaceous hyphomycetes from Esher Common, Surrey. Transactions of the British Mycological Society 77(2): 279–297. https://doi.org/10.1016/S0007-1536(81)80031-9

Wu YM, Xu JJ, Wang HF, Zhang TY. 2013. *Radulidium xigazense* sp. nov., *Rhinocladiella tibetensis* sp. nov., and three new records of *Ramichloridium* from China. Mycotaxon 125: 123–130. https://doi.org/10.5248/125.123